

Outcomes following a diagnosis of colorectal cancer

Structure of talk

Present and critically review studies available in the literature

- Incidence by ethnic group
- Stage at presentation
- Survival
- Outcomes in the context of inflammatory bowel disease

Current SEER data for CRC (Archie Bleyer)

Outcomes and age

138 CRC patients <40 years compared to 339 patients >60 years (Taiwan)

- 14.5% mucin producing (cf 4.7%)
- 7.2% poorly differentiated (cf 3.3%)
- More advanced stage
- Operative mortality lower (0.7% vs 5%)
- Cancer specific survival reported to be similar in Stages I-III, better in stage IV

110 Singaporean patients <40 years (5.1%) compared to 2064 >40 years

- Predisposing conditions and genetic factors in 21% vs 2%
- No difference in stage or site at presentation
- No difference in characteristics (mucinous &c)
- Mean follow up of 32 months
- 5YOS 55% vs 54%

Outcomes and age

Norwegian Rectal Cancer Project

1,354 patients younger than aged 70 years treated for cure

- 45 patients younger than aged 40 years (3%)
- significantly higher frequencies of poorly differentiated tumors (27 vs. 12-16 percent; $P = 0.014$)
- N2-stage (37 vs. 13-18 percent; $P = 0.001$)

	Metastasis	5YOS
Under 40 years	38%	54%
Over 40 years	20-26%	71-88%

Outcomes and age

Turkey

136 patients under 45 years (20%) among 680 total

- 10 patients with family history
- Of patients considered resectable (118), 61 (45%) were found to be metastatic at operation

Egypt

1608 CRC in 4 hospitals (85% of national burden)

- 35.6% under 40 years, constant over time and site
- >50% rectal cancers
- 30.6% mucin producing (cf 14% over 40 years)

Outcomes and age

Retrospective review of 186 patients younger than 40 years at MDACC

- median age 34.3 years, median follow-up 9.4 years
- Stage III-IV 66%
- Histopathologic indicators of more aggressive tumor biology were present at a significantly higher frequency in young patients compared with patients older than 40 years ($p < 0.001$).
 - Poorly differentiated tumor grade 41%
 - signet-ring cell tumors 11%
 - infiltrating tumor leading edges 69%

Retrospective review of 62 patients OHSU

- 3.1% of total CRC population
- 48% metastatic at diagnosis
- Stage for stage, similar survival

Outcomes and age

50 patients Harbor-UCLA medical centre 1956-85

- 7-39 years of age
- 2 inflammatory bowel disease, 3 FAP
- 45% Dukes C, 23% Dukes D
- 5YOS 28%

French retrospective survey

- 4643 cases of CRC 1976-96
- 146 under 45 years (3%)
- Stage III patients more frequent in younger patients
- Post-operative mortality lower under 45 years (2.1% vs 8.4%)
- Stage for stage, survival better for under 45 years compared to over 45 years
- Gender prognostic in multivariate analyses

Dis Colon Rectum. 1989 Oct;32(10):843-6. Colorectal cancer in patients younger than 40 years of age.

Dis Colon Rectum. 2001 Mar;44(3):380-7. Colorectal adenocarcinoma in patients under 45 years of age: comparison with older patients in a well-defined French population.

Outcomes and age

NCI in Milan

- 27 patients <30 years, 7 patients <18 years
- Under 18 years
 - 5/7 unfavourable histology
 - 6/7 advanced disease at diagnosis
 - 6/7 relapsed/progressed
 - 5 died
 - 23% 5YOS
- 19-29 years
 - 72% 5YOS

39 patients under 30 years of age

- 6 had Family history, 4 index cases of FAP
- Rectal cancers in 43%
- 70% at advanced stage
- 11 deaths, 3 alive with disease, 14 no evidence of disease (of 29 curative resections attempted)

Outcomes and age

South Korean

28 CRC patients under 20 years

- Location evenly distributed
- Mucinous cancers more common
- 22/28 stage III or IV
- 5YOS 21%

Malaysia

21 patients under 30 years

- Ethnic Chinese > Malay > Indian
- 25% caecal, mucinous and advanced stage dominated
- 5YOS 25%

Outcomes and age

Surgical outcomes

53 patients with FAP treated with ileal pouch-anal anastomosis (IPAA)

- 31 under 40 years, 22 over 40 years
- No difference in functional outcomes and QoL
- Less nocturnal bowel movements in younger patients at 1 and 3 years
- Fewer bowel movements/day than older patients at all stages of follow up

Outcomes and age

Inflammatory bowel disease and cancer

290 patients with IBD-associated CRC (241 with chronic ulcerative colitis and 49 with Crohn's disease) compared to sporadic CRC patients at the Mayo Clinic

- The median age at diagnosis of IBD-related CRC was 48 years
- 55% of IBD-related tumors were distal to the splenic flexure compared with 78% of sporadic tumors
- 5YS
 - 163 IBD-associated CRC patients=54%,
 - 164 sporadic CRC patients=53%

Outcomes and age

Inflammatory bowel disease and cancer

Danish population-based registry

- 279 patients with UC-associated CRC
 - Younger (median age of onset 63 vs 71 years)
 - Stage similar to overall CRC
 - Mortality rate ratios higher
 - 1.24 (95% CI 1.02-1.51)
- 100 patients with CD-associated CRC
 - Younger age of onset
 - Stage similar
 - Hazard ratio higher
 - 1.82 (95% CI 1.36-2.43)
- **COMPLIANCE WITH SCREENING PROGRAMMES NOT REPORTED**

Am J Gastroenterol. 2007 102(1):163-7. Survival after colorectal cancer in patients with Crohn's disease: A nationwide population-based Danish follow-up study.

Am J Gastroenterol. 2006 101(6):1283-7. Survival after colorectal cancer in patients with ulcerative colitis: a nationwide population-based Danish study.

Summary

Age	Number	Stage	Survival (5YS)
<40	186	More advanced	NA
<45	146	More advanced	No effect (corr. for stage)
<45	136	45% Advanced	NA
<40	110	No age effect	55%
<40	62	58% Advanced	NA
<40	138	No age effect	No effect (corr. for stage)
<40	45	38%	54% (cf 71-88%)
<40	50	28%	28%
<30	21	NA	25%
<30	39	70% Advanced	NA
<20	28	NA	21%
<20	7	84%	23%

Summary

Data is

- Heterogeneous
- Retrospective, historical
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Inflammatory bowel disease and outcomes

- Suggestion that hazard ratio for death from CRC is increased
- No data on psychosocial factors and adherence to surveillance

NCI AYA Cancer Biology Workshop, June 9-10, 2009

The **ABCs of
Acute Lymphoblastic Leukemia,
Breast Cancer and
Colon Cancer
in Adolescent and Young Adult (AYA)
Americans**



Archie Bleyer, MD

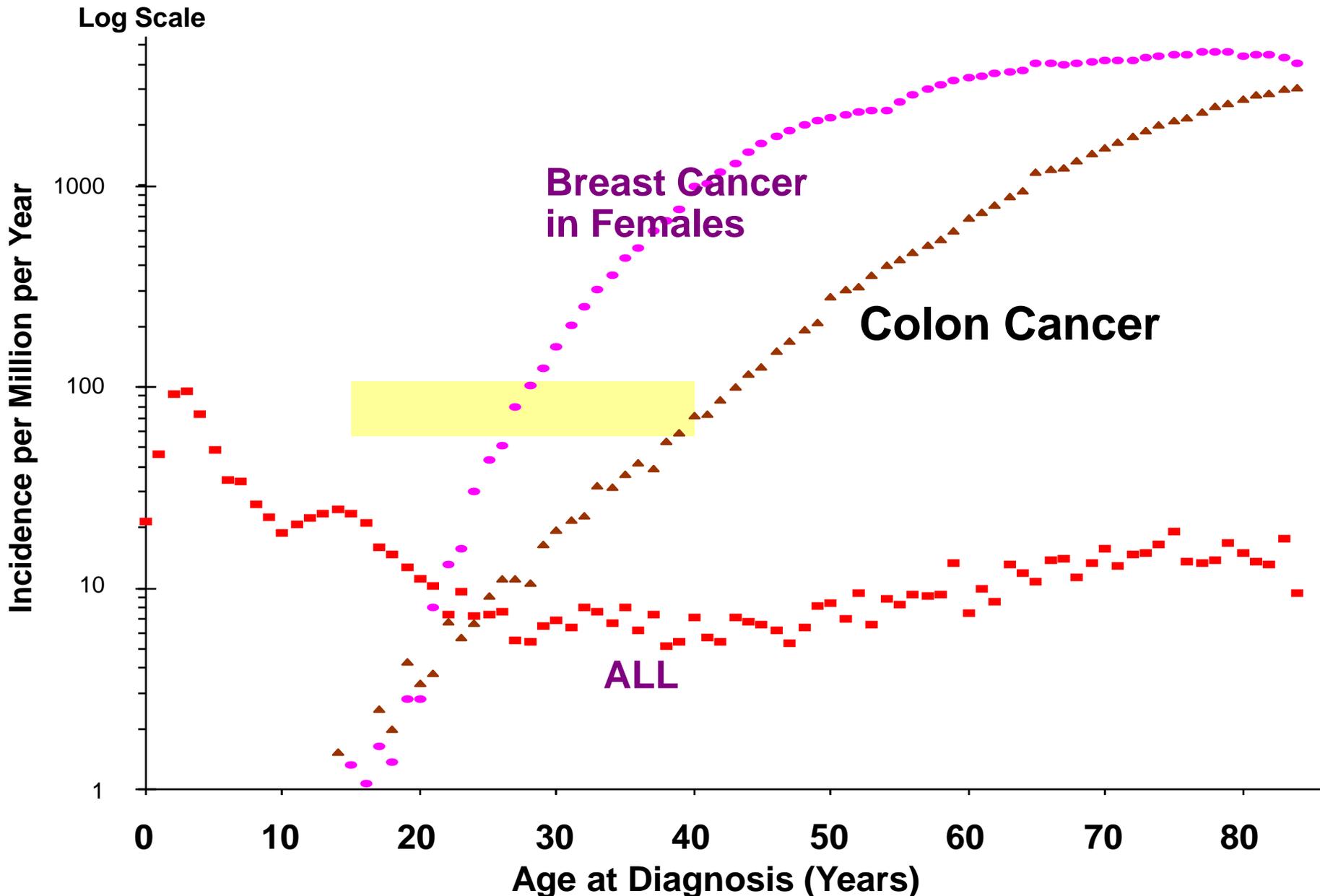
in recognition of the 10th anniversary
of the 1st NCI AYAO Workshop (June 1999)

Incidence since 2000

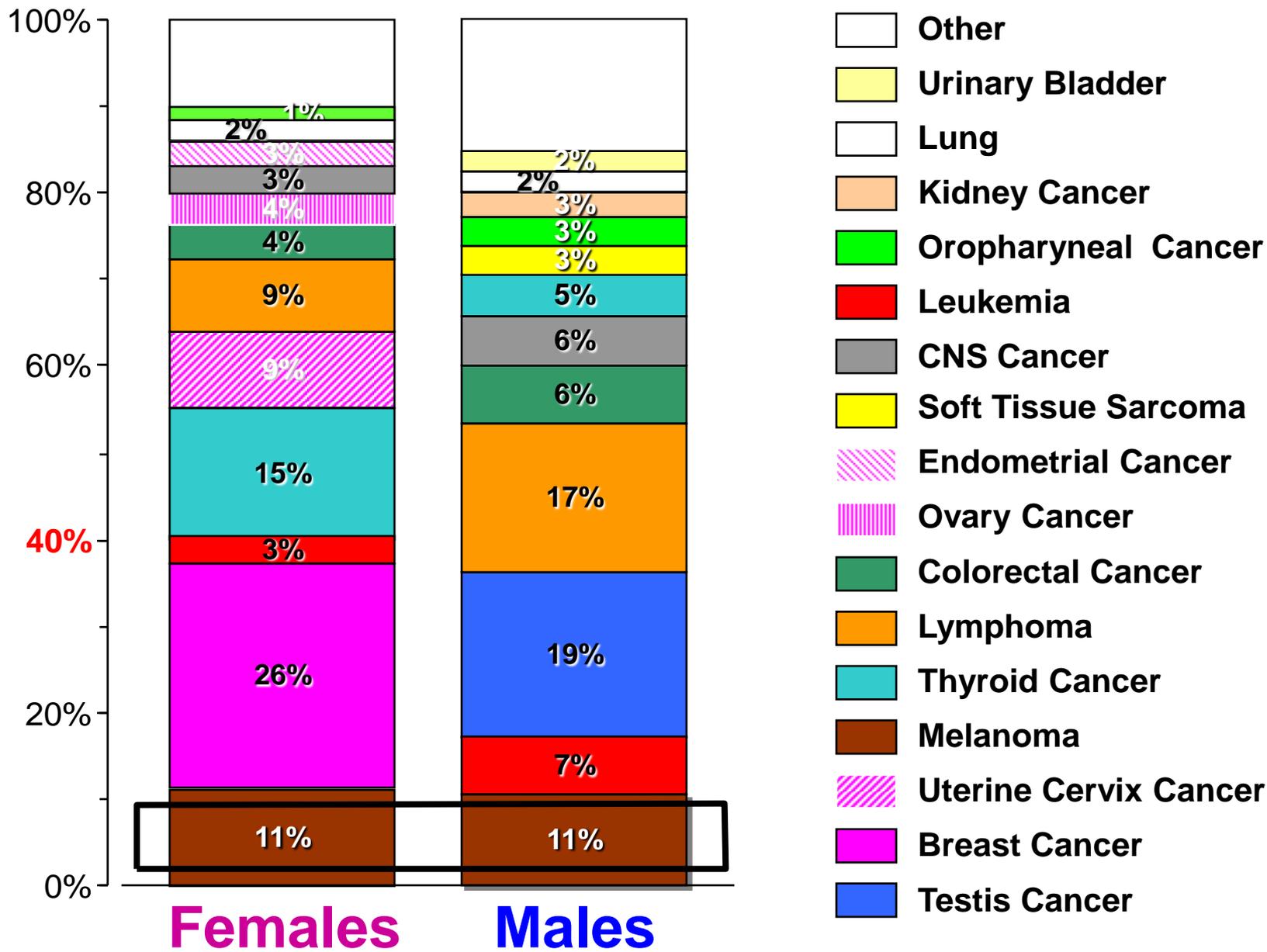
- Colon Cancer

Incidence, 2000-2006, SEER17*

ALL, Colon Cancer, Breast Cancer

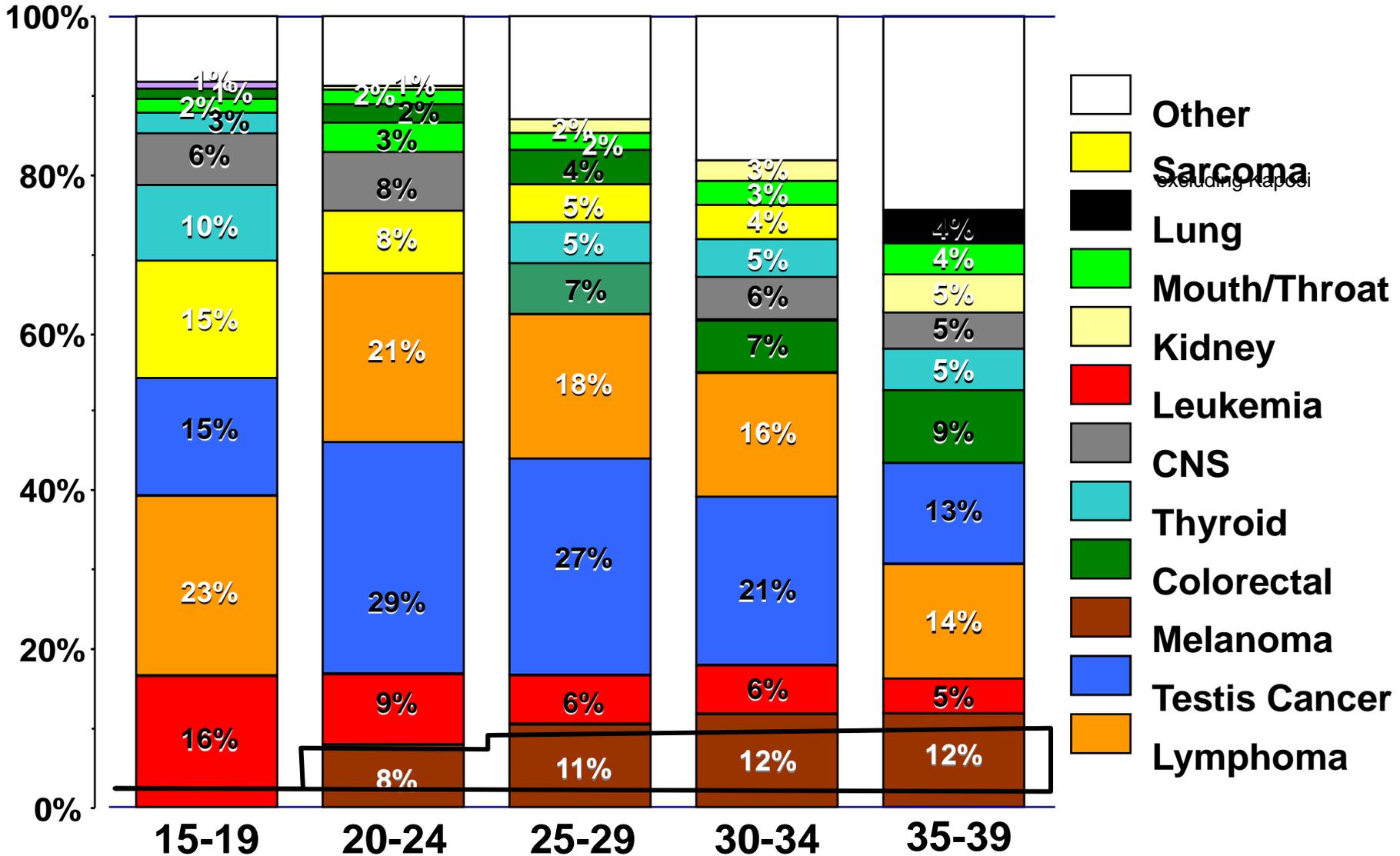


Relative Incidence of Top 12 Most Frequent Types of Cancer Age 15-39, 2000-2004, SEER17



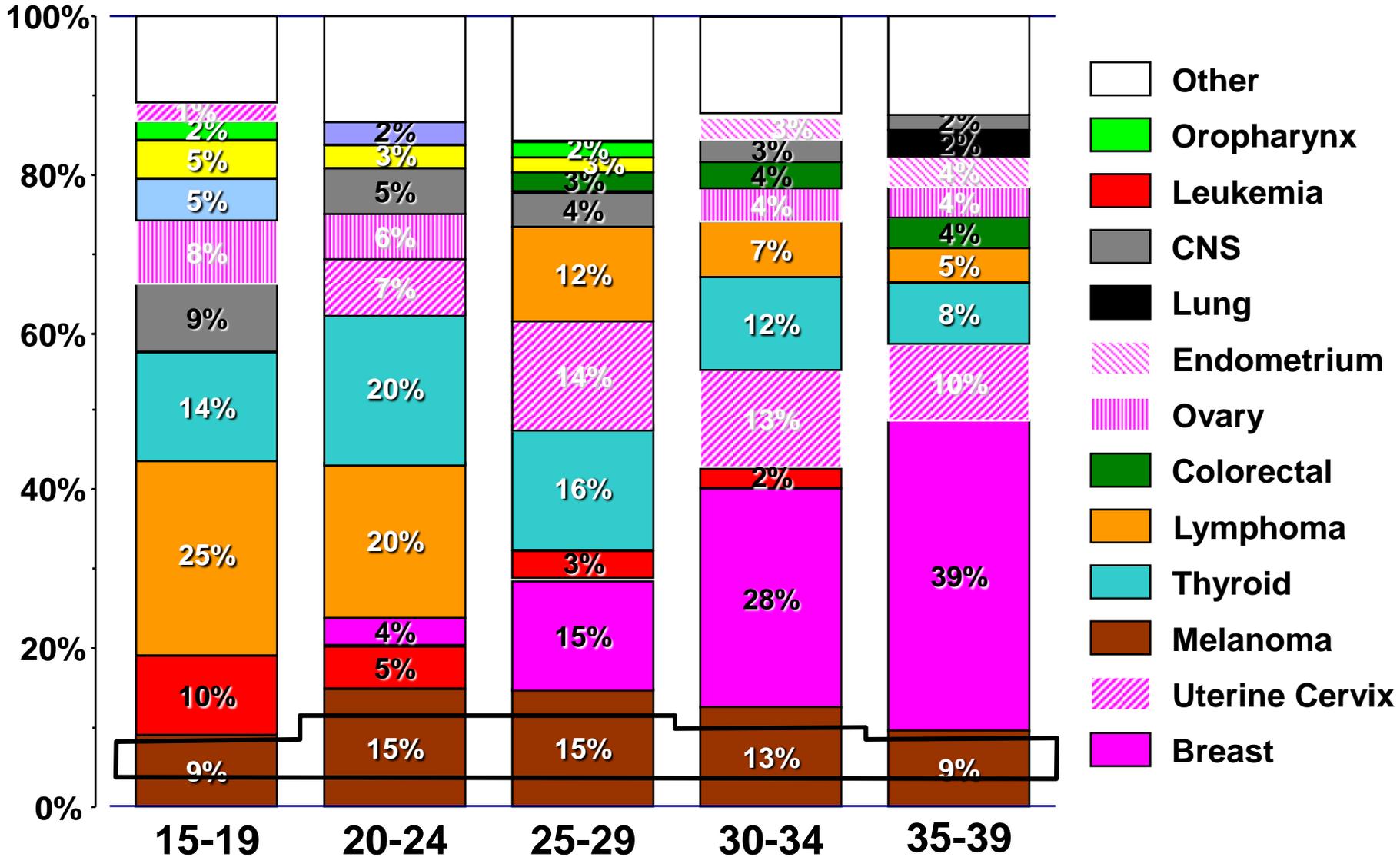
Relative Incidence of Top 10 Most Frequent Types of Cancer in **Males** <40 Years of Age, by 5 Year Intervals

ICD, 2000-2004 SEER17



Relative Incidence of Top 10 Most Frequent Types of Cancer in Females 15-39 Years of Age by 5-Year Intervals

ICD, 2000-2004 SEER17



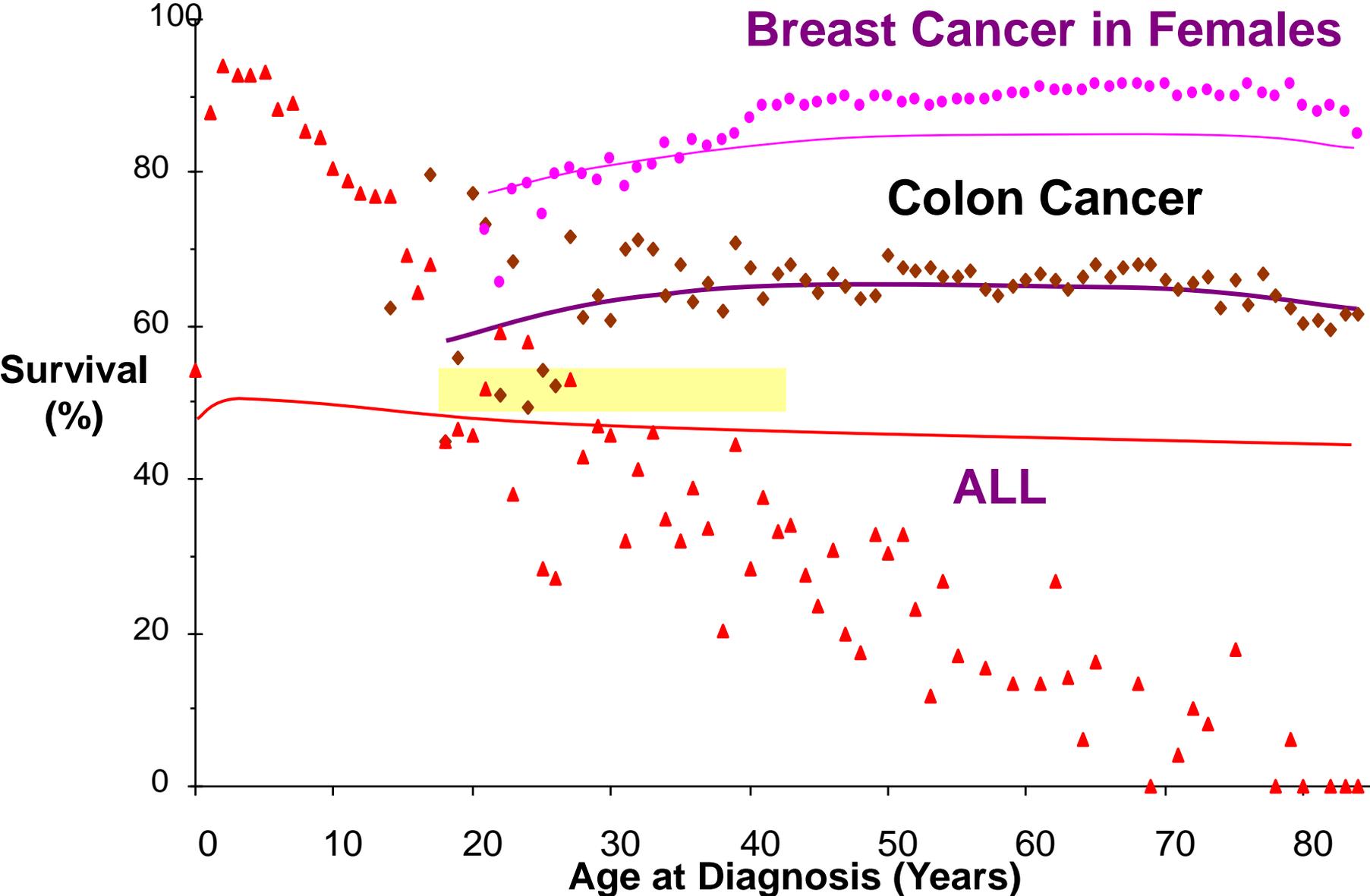
NCI AYA Cancer Biology Workshop, June 9-10, 2009

Survival

2000-2006

- Colon Cancer

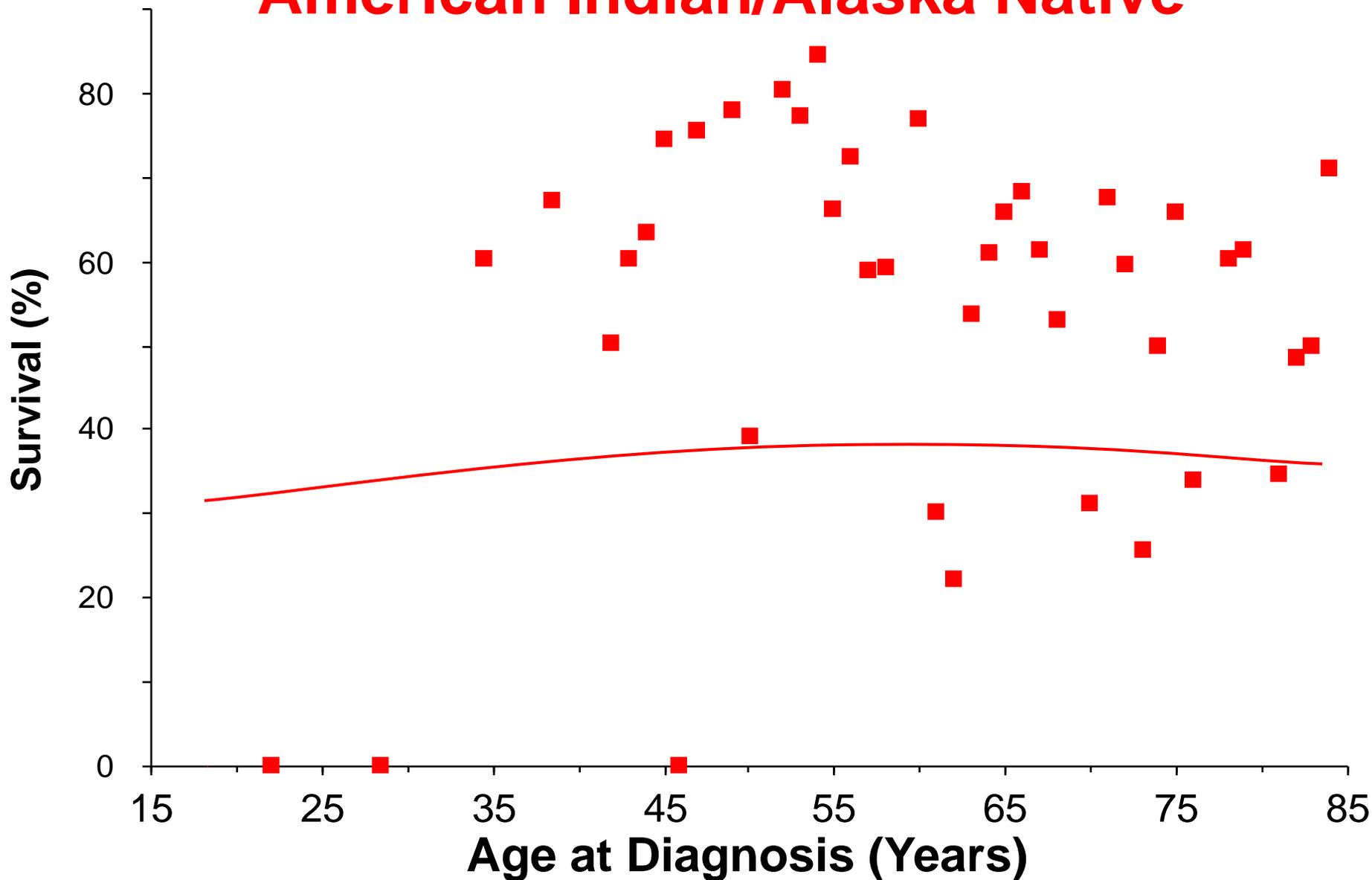
5-Year Relative Survival, 2000-2006, SEER 17



5-Year Relative Survival, Colon Cancer, 2000-2006, SEER17

with 2⁰ polynomial regressions

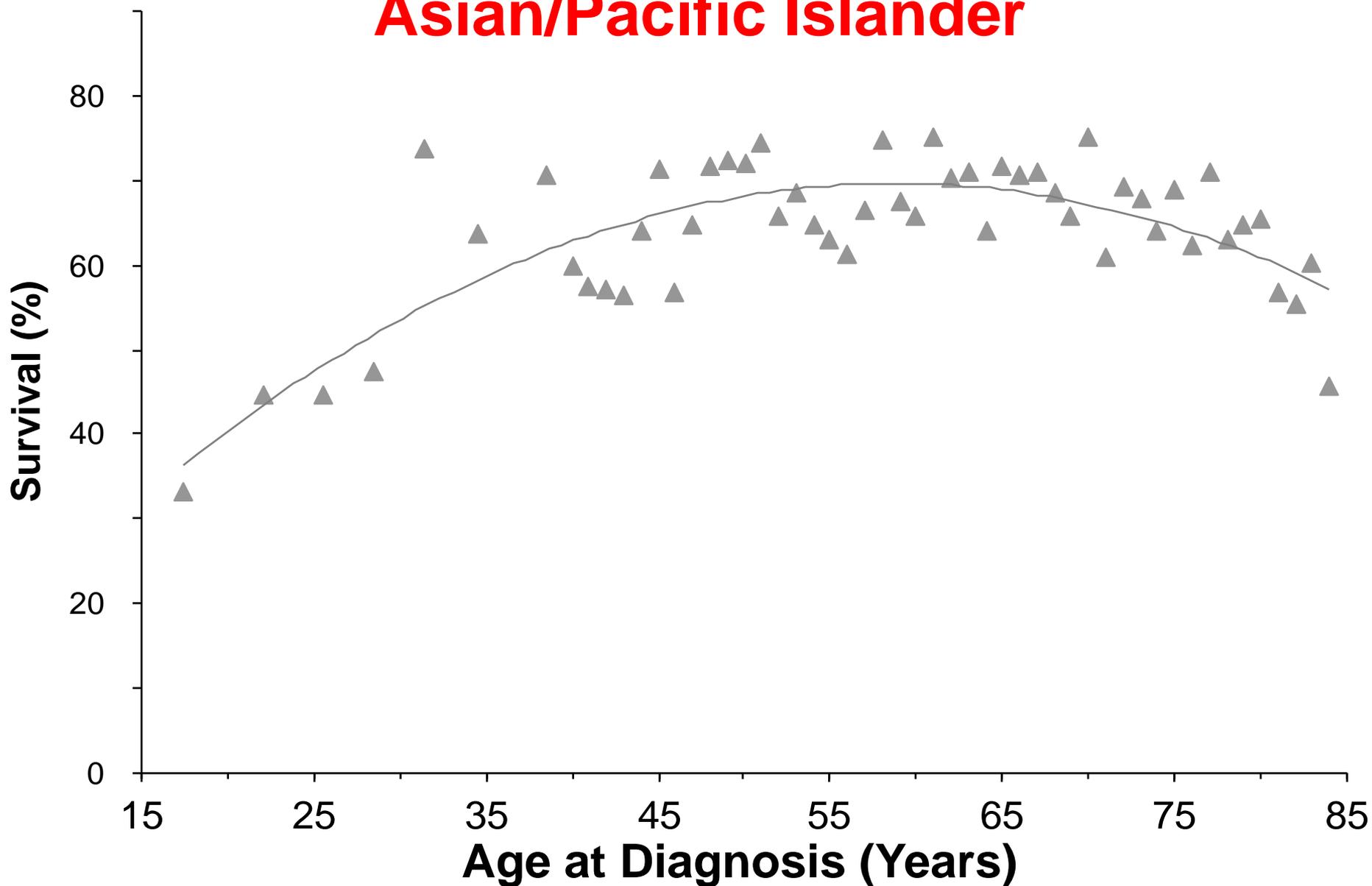
American Indian/Alaska Native



5-Year Relative Survival, Colon Cancer, 2000-2006, SEER17

with 2⁰ polynomial regressions

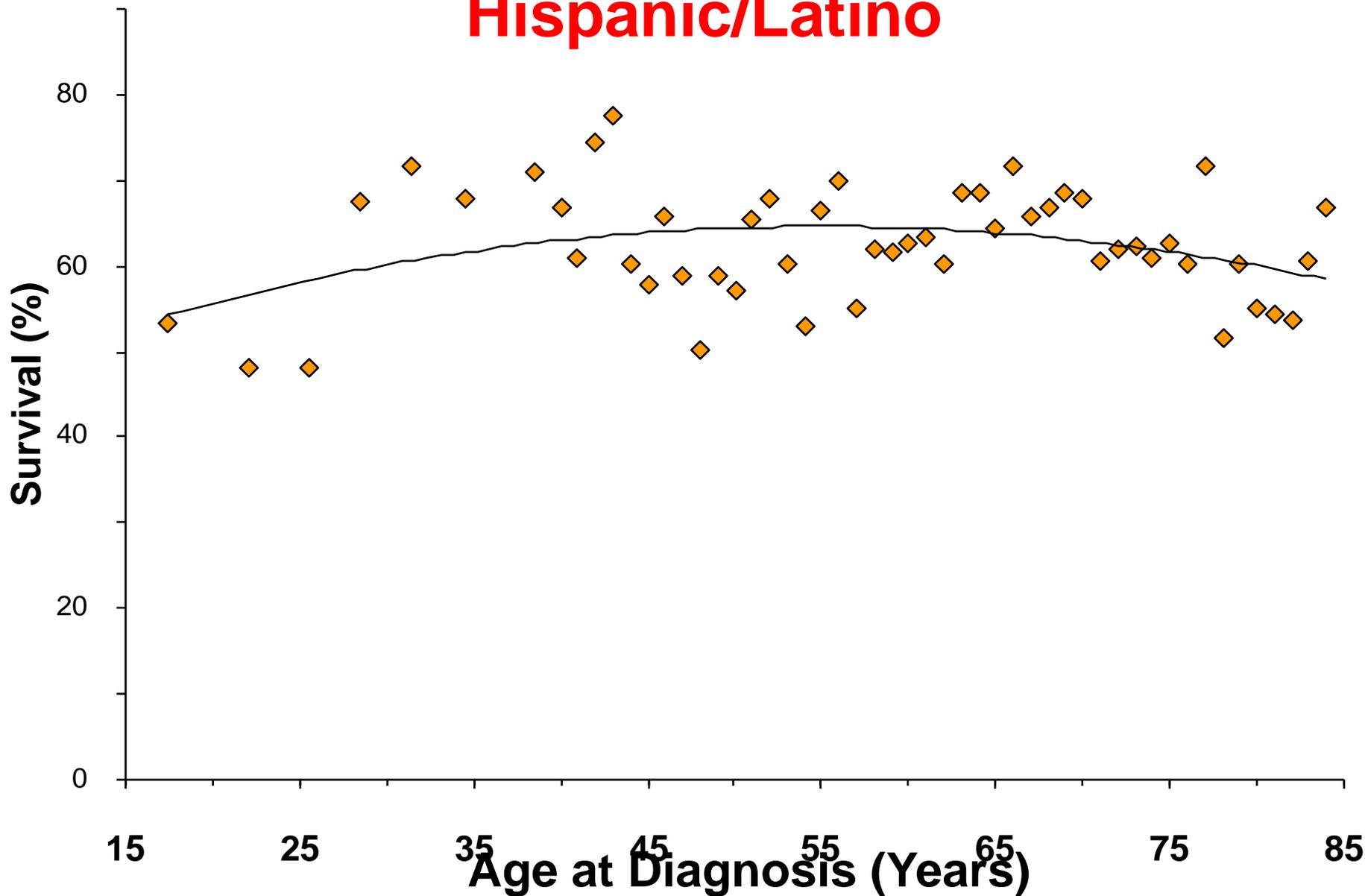
Asian/Pacific Islander



5-Year Relative Survival, Colon Cancer, 2000-2006, SEER17

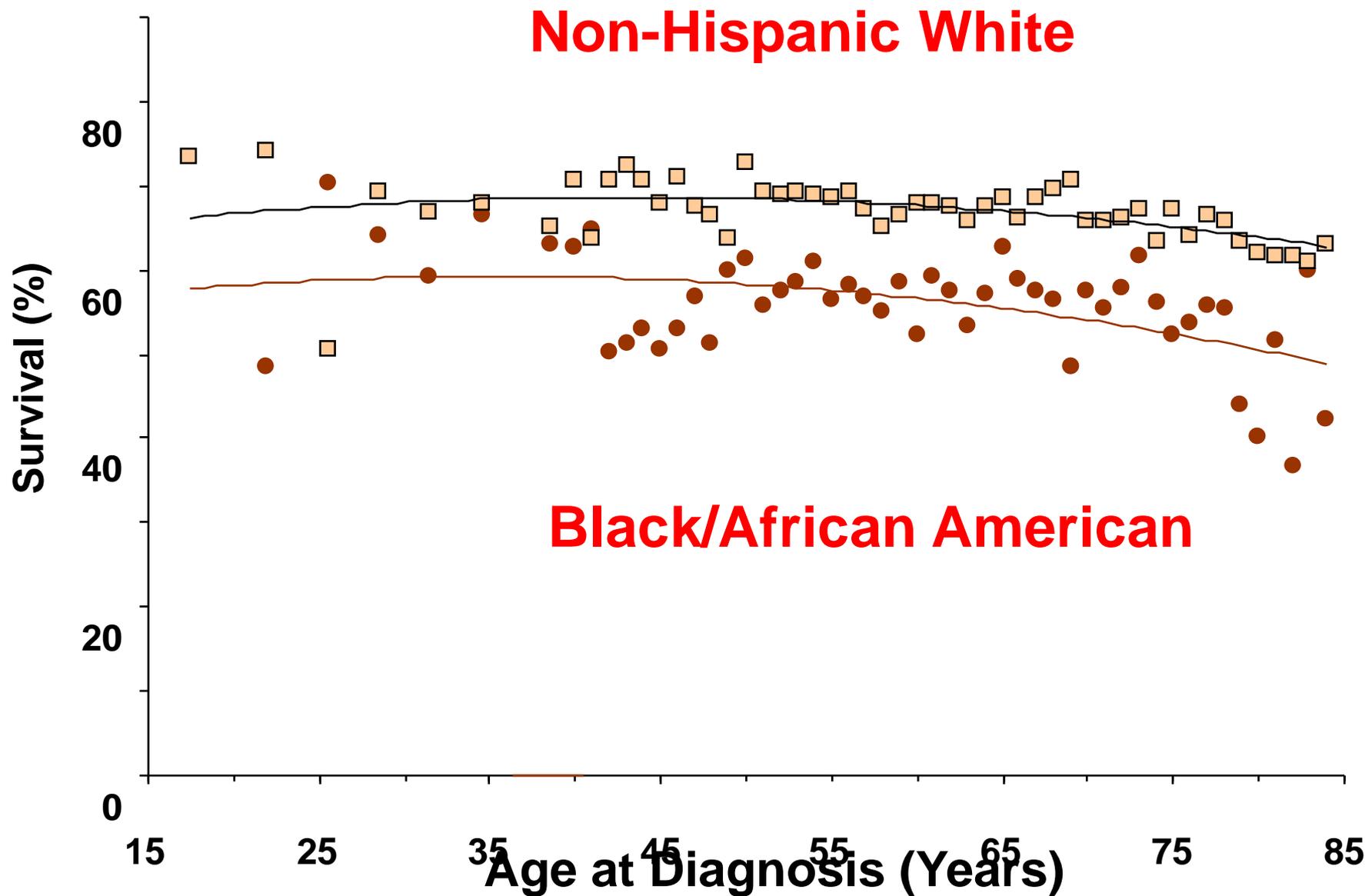
with 2⁰ polynomial regressions

Hispanic/Latino

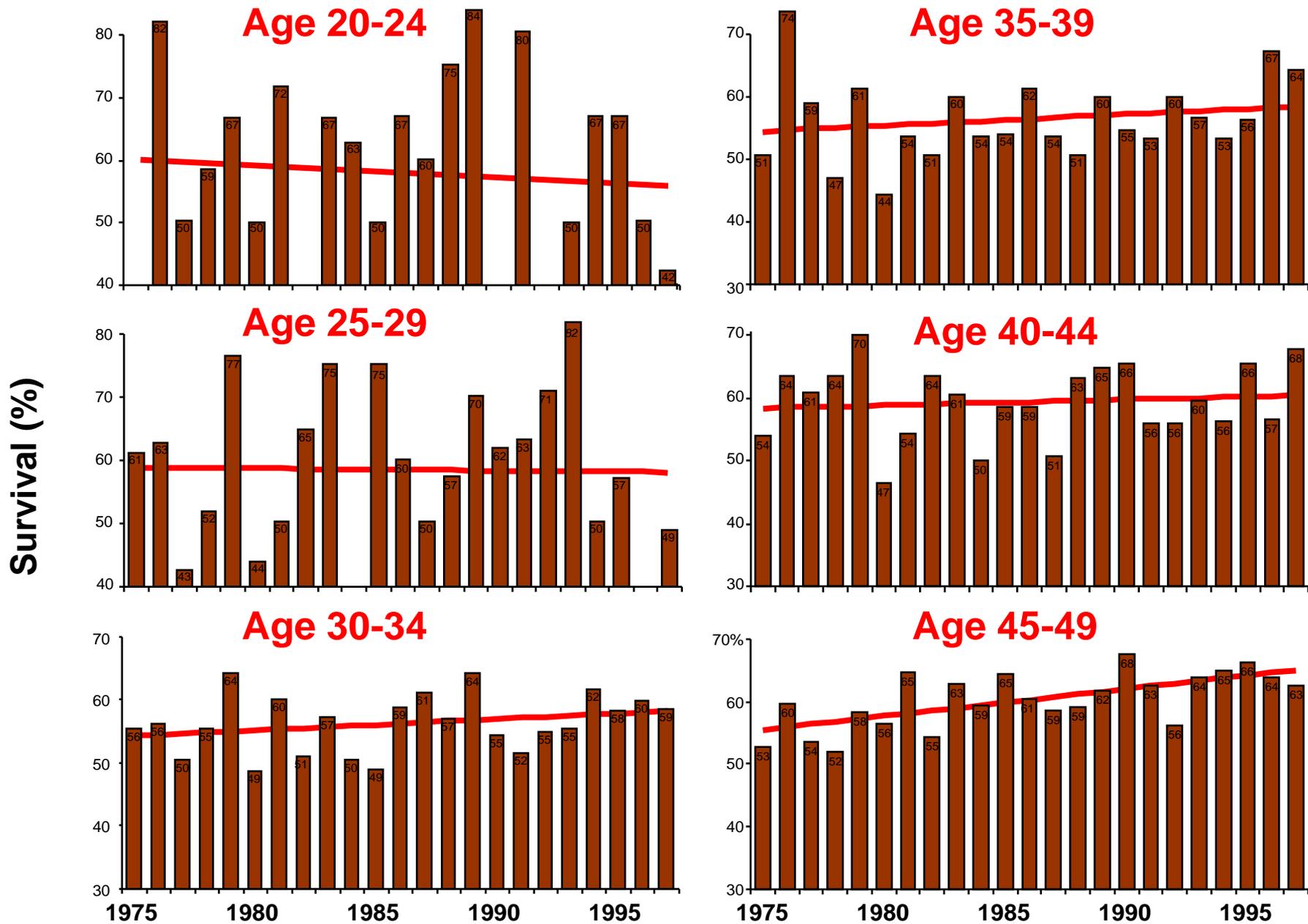


5-Year Relative Survival, Colon Cancer, 2000-2006, SEER17

with 2⁰ polynomial regressions

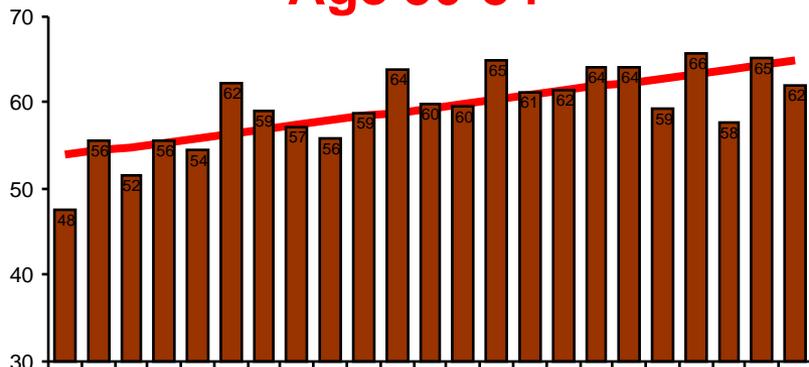


5-Year Relative Survival, 1975-1997 by Calendar Year, SEER9 Colon Cancer

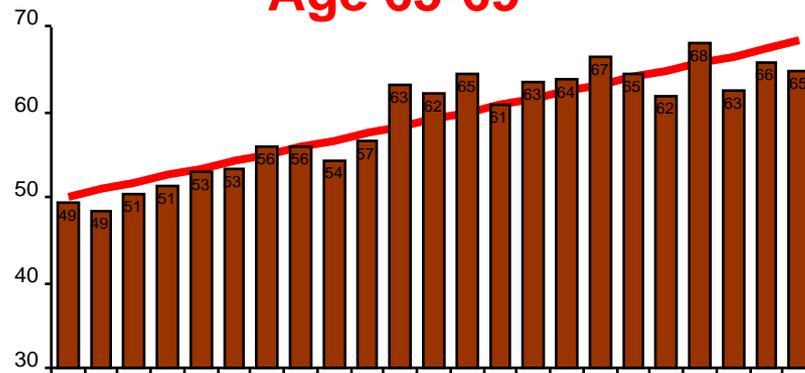


5-Year Relative Survival, 1975-1997 by Calendar Year, SEER9 Colon Cancer

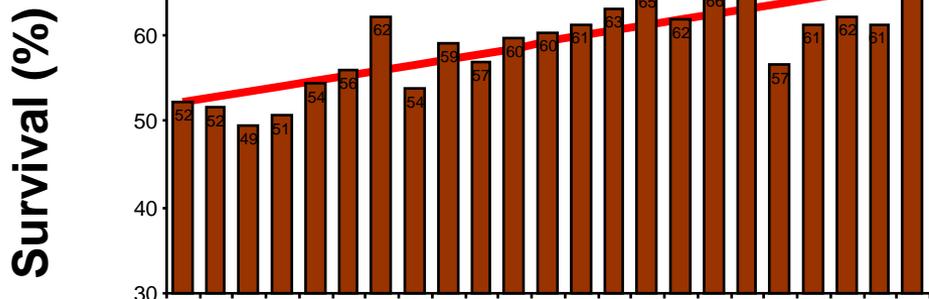
Age 50-54



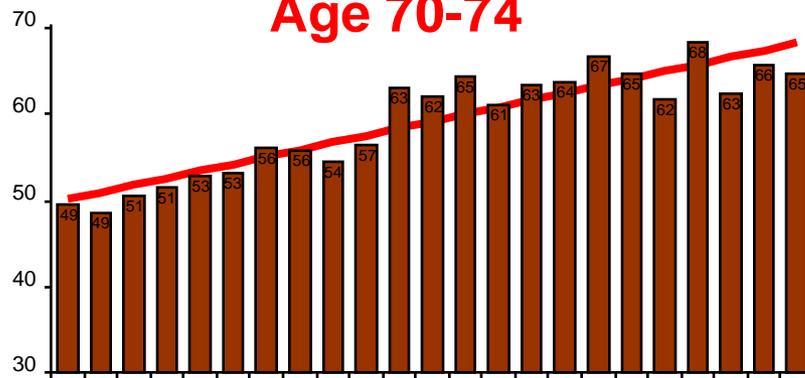
Age 65-69



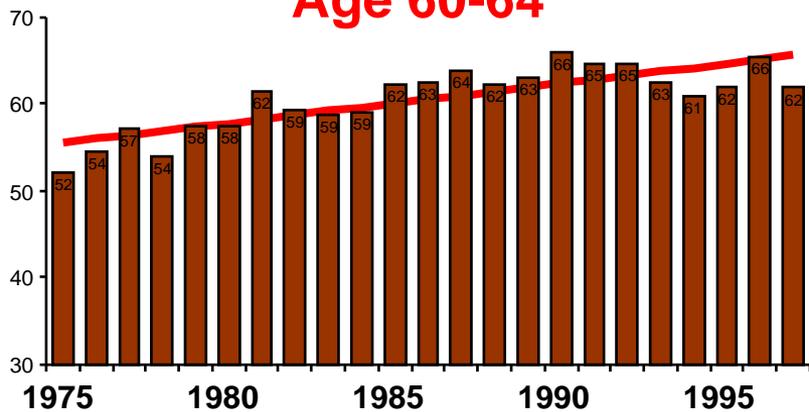
Age 55-59



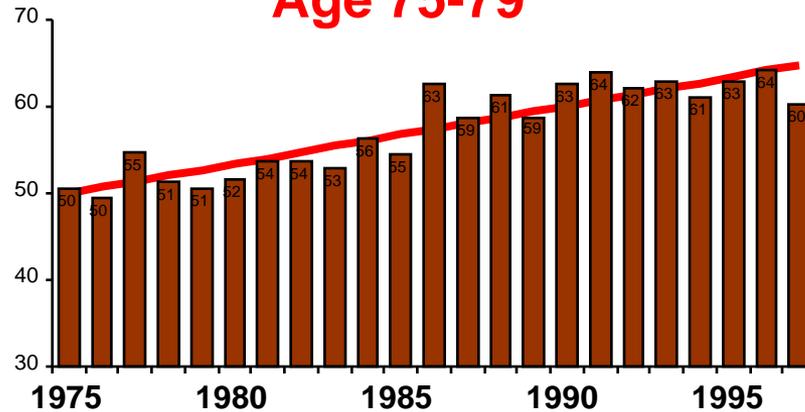
Age 70-74



Age 60-64



Age 75-79



Average Annual % Change (AAPC) 5-Year Relative Survival Colon Cancer

1975 to 1997, SEER9

